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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,183	02/26/2002	Shingo Ishihara	500.41280X00	2432

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EXAMINER

KRISHNAN, SUMATI

ART UNIT PAPER NUMBER

2875

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/082,183

Applicant(s)

ISHIHARA ET AL.

Examiner

Sumati Krishnan

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 2 and 6-7 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagayama et al (US 5742129). Nagayama discloses an organic light emitting element comprising an organic electroluminescent substrate having a first electrode (4), an organic layer (6), and a second transparent electrode (9) formed on a substrate (10), a counter substrate (10), and a light extraction layer (conductive films on either side of insulating substrate) located between the organic electroluminescent substrate and the counter substrate. Nagayama also discloses ribs (or ramparts, 7) provided between the organic electroluminescent substrate and the counter substrate. The limitation that the ribs are ‘to control a thickness....’ is not given patentable weight because it is considered an intended use statement. Regarding claim 7, the conductive films (light extraction layers) are from 100-500 microns thick, thus being greater than 50 microns. Regarding claim 11, Nagayama discloses a “color filter”(shadow mask 30) formed between the organic electroluminescent substrate and the counter substrate. Regarding claim 12, the color filters are formed “on” the counter substrate (via the second transparent electrode).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (US 6541130) in view of Tang et al (US 5684365). Fukuda discloses an organic light emitting display comprising light emitting elements that comprise a first electrode, an organic layer, and a second electrode all formed on a substrate. Fukuda discloses that a distance 'd' from a light emitting area in the organic layer to an air layer into which produced light enters, satisfies the equation 'd' is less than or equal to one quarter of the center wavelength of the emitted light. See col. 3 lines 10-13. Fukuda does not disclose a passivation layer. However, Tang discloses a passivation layer (74) used in an organic electro-luminescent device. A passivation layer protects the device from unwanted electrical interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the passivation layer of Tang in the invention of Fukuda.

Regarding claim 21, Fukuda discloses that the light emitting element corresponds to each of red, green, and blue in each pixel.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al (US 5742129) in view of Fukuda (US 6541130). Nagayama discloses an organic light emitting element comprising an organic electroluminescent substrate having a first electrode (4), an organic layer (6), and a second transparent electrode (9) formed on a substrate (10), a counter substrate (10), and a light extraction layer (conductive films on insulating substrates) between the organic electroluminescent substrate and the counter substrate. Nagayama does not disclose a total thickness  $d$  of a layer ranging from a light emitting area in the organic layer to the second transparent electrode satisfying an equation  $d$  being less than or equal to a quarter of the center wavelength of emitted light. Fukuda, however, discloses an organic light emitting element comprising a first electrode, an organic layer, and a second electrode all formed on a substrate. Fukuda discloses that a distance ' $d$ ' from a light emitting area in the organic layer to an air layer into which produced light enters, satisfies the equation ' $d$ ' is less than or equal to one quarter of the center wavelength of the emitted light. See col. 3 lines 10-13. Choosing a thickness of a quarter wavelength of the emitted light is known to suppress reflection and promote maximum transmission of light. Therefore, it would have been obvious to have used the thickness of quarter wavelength in the invention of Nagayama in order to suppress reflection.

4. Claims 4 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (US 4954746) in view of Nagayama (US 5742129). Taniguchi discloses a light emitting element comprising an electroluminescent substrate having a first electrode (12), a luminescent layer (14), and a second transparent electrode (16) formed on a substrate (11), a

counter substrate (1), and a light extraction layer (conductive films on insulating substrates) and an auxiliary electrode, (6) both provided between the electroluminescent substrate and the counter substrate. Taniguchi does not disclose the light emitting layer being organic. However, Nagayama discloses an electroluminescent display panel using organic layers as the light emitting layers. Organic layers typically have a faster response time and make the device lighter in weight than inorganic substances. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the organic layers of Nagayama as the light emitting layers of Taniguchi because of the advantages listed above.

Regarding claims 15 -18, Taniguchi discloses the auxiliary electrode 6 formed between pixels, and 'on' the counter substrate, as well as "on" the second transparent electrode (2). A boding layer is provided in order to bring electrodes 2 and 6 in electrical contact. See figure 5.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (US 4954746) in view of Nagayama (US 5742129) in further view of Fukuda (US 6541130). Taniguchi discloses a light emitting element comprising an electroluminescent substrate having a first electrode (12), a luminescent layer (14), and a second transparent electrode (16) formed on a substrate (11), a counter substrate (1), and a light extraction layer (conductive films on insulating substates) and an auxiliary electrode, (6) both provided between the electroluminescent substrate and the counter substrate. Taniguchi does not disclose the light emitting layer being organic. However, Nagayama discloses an electroluminescent display panel using organic layers as the light emitting layers. Organic layers typically have a faster response time and make the device lighter in weight than inorganic substances. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the

Art Unit: 2875

organic layers of Nagayama as the light emitting layers of Taniguchi because of the advantages listed above.

Neither Taniguchi or Nagayama discloses a thickness  $d$  of a layer ranging from a light emitting area in the organic layer to the second transparent electrode satisfying  $d$  being less than or equal to a quarter wavelength of emitted light.

Fukuda, however, discloses an organic light emitting element comprising a first electrode, an organic layer, and a second electrode all formed on a substrate. Fukuda discloses that a distance ' $d$ ' from a light emitting area in the organic layer to an air layer into which produced light enters, satisfies the equation ' $d$ ' is less than or equal to one quarter of the center wavelength of the emitted light. See col. 3 lines 10-13. Choosing a thickness of a quarter wavelength of the emitted light is known to suppress reflection and promote maximum transmission of light. Therefore, it would have been obvious to have used the thickness of quarter wavelength of Fukuda in the invention of Nagayama in order to suppress reflection.

6. Claims 8-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al (US 5742129) in view of Takahashi (US 5804917). Nagayama discloses the organic light emitting element according to claim 6, but does not disclose the rib being formed on the counter substrate. Takahashi, however, discloses an organic light emitting element having a glass rib (8) formed on the counter substrate (1), on a "sealed portion" of the organic electroluminescent substrate and counter substrate (see element 5 which facilitates the 'sealing.'). Takahashi discloses that forming the rib on the counter substrate serves to provide extra support to the substrate. Therefore, it would have been obvious to one of ordinary skill in

Art Unit: 2875

the art at the time the invention was made to have used the rib of Takahashi located on the counter substrate, in the invention of Nagayama in order to provide increased support.

Regarding claims 13-14, Takahashi discloses a “moisture absorbing layer” (seal layer 5) provided on the counter substrate and around a portion sealing the organic electroluminescent substrate and the counter substrate.

7. Claims 19 and 22 are rejected under 35 U.S.C. 103(a) Nagayama et al (US 5742129) in view of Fukuda (US 6541130) further in view of in view of Tang et al (US 5684365). Nagayama discloses an organic light emitting display comprising an organic electroluminescent substrate having a first electrode (4), an organic layer (6), and a second transparent electrode (9) formed on a substrate (10), a counter substrate (10), and a light extraction layer (conductive films on either side of insulating substrate) located between the organic electroluminescent substrate and the counter substrate. Nagayama discloses the second electrode being transparent and made out of a thin metallic film. Nagayama does not, however disclose the distance  $d$  satisfying the equation of claim 1, or a passivation film. Fukuda discloses an organic light emitting element comprising a first electrode, an organic layer, and a second electrode all formed on a substrate. Fukuda discloses that a distance ‘ $d$ ’ from a light emitting area in the organic layer to an air layer into which produced light enters, satisfies the equation ‘ $d$ ’ is less than or equal to one quarter of the center wavelength of the emitted light. See col. 3 lines 10-13. Choosing a thickness of a quarter wavelength of the emitted light is known to suppress reflection and promote maximum transmission of light. Therefore, it would have been obvious to have used the thickness of quarter wavelength of Fukuda in the invention of Nagayama in order to suppress reflection.



Art Unit: 2875

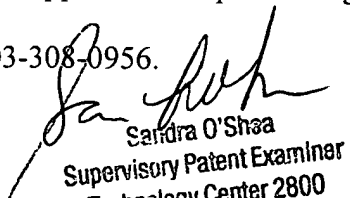
Fukuda does not disclose a passivation layer. However, Tang discloses a passivation layer (74) used in an organic electro-luminescent device. A passivation layer protects the device from unwanted electrical interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the passivation layer of Tang in the invention of Nagayama.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (US 6541130) in view of Tang et al (US 5684365) in further view of Pichler (US 5929562). Fukuda and Tang together disclose the light emitting display of claim 20. Neither, however, disclose the use of the organic display in a mobile phone. However, Pichler discloses using electroluminescent elements in electronic display devices such as mobile phones. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the electroluminescent element of Fukuda and Tang in a display portion of a mobile phone as disclosed by Pichler because of their high resolution.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumati Krishnan whose telephone number is 703-305-7906. The examiner can normally be reached on 8:00 am - 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 703-305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800

Application/Control Number: 10/082,183  
Art Unit: 2875

Page 9

SK  
May 3, 2003